REMARKS

Claims 2-11 and 13-19 are pending in the application. Claim 2 has been amended. Claims 1 and 12 stand canceled. Applicant submits that no new matter has been added to the application by the amendment.

Interview

Applicant wishes to thank Examiners Rashid and Yosef for the courtesy of the telephone interview conducted on November 15, 2007 in which Applicant's attorney of record explained the differences between the claimed invention and the cited prior art. Examiner Yosef suggested that claim 2 be amended to recite that the distance between peaks is calculated. Accordingly, Applicant has amended claim 2 in accordance with the Examiner's suggestion.

Note

References to Japanese Laid-Open Patent Publication No. 2000-134467 (Tsuchiya et al.), Application No. 10-303940, where made, are made to U.S. Patent No. 6,694,051 which claims priority to Application No. 10-303940 and whose text is more understandable than the computer generated translation of Application No. 10-303940 provided with the Office Action.

Introduction

The present invention is directed to an image processing method and apparatus which determines an exposure under varying lighting conditions. In particular, an embodiment of the invention determines whether the subject in a scene is back lighted by processing the luminance histogram of the scene to determine the standard deviation of the luminance distribution and the distances between the three largest peaks in the luminance distribution. If the preceding two parameters are each found to exceed predetermined threshold values, the scene is determined to be back lighted.

Matsushima is also directed to an image processing apparatus which determines whether the subject in a scene is back lighted. Matsushima bases the determination of back lighting on the principle that a back lighted scene results in a polarized histogram and measures the

polarization level of the histogram by using the frequency and the slope of the luminance histogram (paragraph 0074).

Tsuchiya is also directed to an image process method and apparatus for favorably reproducing images which are photographed in backlight conditions. In a second embodiment, a scene is determined to be back lighted by comparing the sum of the frequencies in the luminance diagram between 225 and 240 with the sum of the frequencies in the luminance diagram between 241 and 255. In the fifth embodiment, a scene is determined to be back lighted if the distance between the highlighted point (HL) of the luminance histogram constituting 99 % of the frequencies and the starting point (SD) of the luminance histogram constituting 1% of the frequencies is greater than a predetermined threshold and the average luminance is within a predetermined range.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 2-3 and 11 under 35 U.S.C. § 103 as being obvious over US 2003/009407 (Matsushima) in view of Japanese Laid-Open Patent Publication No. 2000-134467 (Tsuchiya et al.). The Examiner states that Matsushima discloses an image processing method that: (1) obtains a luminance average value, a luminance standard deviation and a peak distance between peaks; (2) compares a discrimination distribution value with the obtained peak distance value and (3) compares a halftone/presence/absence discrimination value the obtained standard deviation and compares the luminance average value and luminance standard deviation. The Examiner further states that Matsushima does not teach using a peak distance value which indicates a longest distance value but Tsuchiya et al. does teach using a peak distance value which indicates a longest distance value and it would have been obvious to one of ordinary skill in the art at the time of the invention to include the peak distance value which indicates the longest distance. Applicant respectfully traverses the rejection.

Applicant submits that neither Matsushima nor Tsuchiya et al. disclose, teach or suggest calculating a peak distance value which indicates the longest distance between peaks and then comparing the peak distance value to a distribution discrimination function to discriminate whether an image is a back lighted image, as recited in amended claim 2.

The Examiner states that Tsuchiya et al. teaches using a peak distance value by noting that the removal of low peaks constitutes a value indicating the longest peak. However, the Examiner's conclusion is improper for two reasons: (1) the disclosure of the removal of low peaks without more does not suggest using a distance between peaks in a later comparison calculation such as recited in claim 2 and (2) there is no suggestion that the removal of low peaks would result in a distance value of the longest distance between peaks.

Paragraph [0050] cited by the Examiner merely describes a method for removing peaks which are below a threshold Th_a. Figs. 14 and 15, also cited by the Examiner, merely show histograms of plural peaks and do not teach or suggest that the longest distance between peaks is used for discriminating a backlight image from other types of images.

Further, there is no disclosure, teaching or suggestion in either Matsushima nor Tsuchiya of calculating a value of the longest distance between peaks in the luminance diagram or comparing the value of longest peak distance with a distribution discrimination value which can discriminate whether a distribution deviation exists on a low or a high luminance side of the luminance histogram, as recited in amended claim 2.

Also, as described above, both Matsushima and Tsuchiya et al. teach completely different methods for determining whether a scene is back lighted.

Accordingly, for al the above reasons, Applicant respectfully requests reconsideration and withdrawal of the §103 rejection of claim 2.

Further, it is respectfully submitted that since claim 2 has been shown to be allowable, claims 3 and 11 dependent on claim 2 are allowable, at least by their dependency. Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the § 103 rejection of claims 3 and 11.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 4-9 and 15-17 under 35 U.S.C. § 103 as being obvious over US 2003/009407 (Matsushima) in view of Japanese Laid-Open Patent Publication No. 2000-134467 (Tsuchiya et al.) and U.S. 2003/0002736 (Maruoka et al.).

Claims 4-10 and 15-17 depend from claim 2. Maruoka et al. does not disclose, teach or suggest calculating a value of longest distance between peaks or comparing the value with a distribution discrimination value. Consequently, because Maruoka et al. does not make up for the deficiency of Matsushima and Tsuchiya et al., Applicant submits that the combination of Matsushima, Tsuchiya et al. Maruoka et al. does not make claims 4-9, and 15-17 obvious. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the §103 rejection of claims 4-10 and 15-17.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 14, and 18-19 under 35 U.S.C. § 103 as being obvious over US 2003/009407 (Matsushima) in view of Japanese Laid-Open Patent Publication No. 2000-134467 (Tsuchiya et al.) and U.S. Patent No. 6,371,373 (Ma).

With respect to claims 18 and 19, the Examiner states that Matsushima discloses a luminance standard deviation unit and an exposure discriminating unit that discriminates whether the image is a backlight image. The Examiner further states that Tsuchiya et al. discloses a peak distance unit which detects one or more peaks from a luminance histogram and an exposure discriminating unit which calculates a peak distance. The Examiner further states that Ma discloses a method for reading a two-dimensional barcode that teaches finding a more relevant difference which indicates the longest distance between peaks and discriminates on the basis of the results of comparisons.

Applicant submits that neither Matsushima, Tsuchiya et al. nor Ma, nor the combination, teach, suggest or disclose calculating a peak distance between the longest distance between peaks as recited in claims 18 and 19.

The Examiner appears to state that Tsuchiya et al. discloses a decimating unit which calculates a peak distance value and variously identifies points SD, HL1 and HL2 for obtaining the peak distance value. However, Tsuchiya et al. identifies points SD and HL1 as

corresponding to 1% and 99% points of the accumulated frequencies of the histogram and not corresponding in any way to the location of a peak. (See col. 8, line 65 to col. 9, line 3 and Figs 14 and 15). Similarly, HL2 is described as a point on the skirt of the on the higher lightness side (col. 9, lines 15-17). Consequently, Tsuchiya et al. can not be said to include an exposure discriminating unit which calculates a peak distance which indicates the longest distance between peaks.

The Examiner appears to concede that the points HL and SD are not points from which the peak distance could be calculated but states that Ma discloses a method that teaches finding a peak distance value which indicates the longest distance between peaks. Ma however, does not teach of suggest finding a peak distance which is the longest distance between peaks but merely determines the distance between all peaks remaining after low peaks are discarded to determine whether a peak has been missed that should be considered .

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959), MPEP §2143.01.

Applicant submits that Tsuchiya et al. and Ma are not properly combinable under 35 U.S.C. § 103. Tsuchiya et al. teaches in one embodiment basing a determination that a scene is back lighted based on the distance between the 1% and the 99% frequency points of the histogram. Thus, Tsuchiya et al. does not teach or suggest calculating the distance between peaks. Accordingly, because Ma would completely change the principles by which Tsuchiya et al. operates, the combination of Tsuchiya et al. is improper.

Applicant submits that the combination of Matsushima, Tsuchiya and Ma does not make claims 18 and 19 obvious. Accordingly, for al the above reasons, Applicant respectfully requests reconsideration and withdrawal of the §103 rejection of claims 18 and 19.

Further, it is respectfully submitted that since claim 19 has been shown to be allowable, claims 14 dependent on claim 19 is allowable, at least by its dependency. Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the § 103 rejection of claims 3 and 11.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claim 13 under 35 U.S.C. § 103 as being obvious over US 2003/009407 (Matsushima) in view of Japanese Laid-Open Patent Publication No. 2000-134467 (Tsuchiya et al.), U.S. Patent No. 6,371,373 (Ma) and U.S. 2003/0002736 (Maruoka et al.).

Neither Ma nor Maruoka et al. disclose, teach or suggest calculating a longest distance between peaks. Consequently, because neither Ma nor Maruoka et al. make up for the deficiency of Matsushima and Tsuchiya et al., Applicant submits that the combination of Matsushima, Tsuchiya et al., Ma and Maruoka et al. does not make claim 13, dependent on allowable claim 19 obvious. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the §103 rejection of claim 13.

Conclusion

Insofar as the Examiner's objections and rejections were fully addressed, the present application is in condition for allowance. Issuance of a Notice of Allowability of all pending claims is therefore requested.

Respectfully submitted,

Kazuyo Watanabe

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(Date)

LOUIS SICKLES, II
Registration No. 45,803
AKIN GUMP STRAUSS HAUER & FELD LLP
One Commerce Square
2005 Market Street - Suite 2200
Philadelphia, PA 19103
Direct Dial: (215) 965-1294